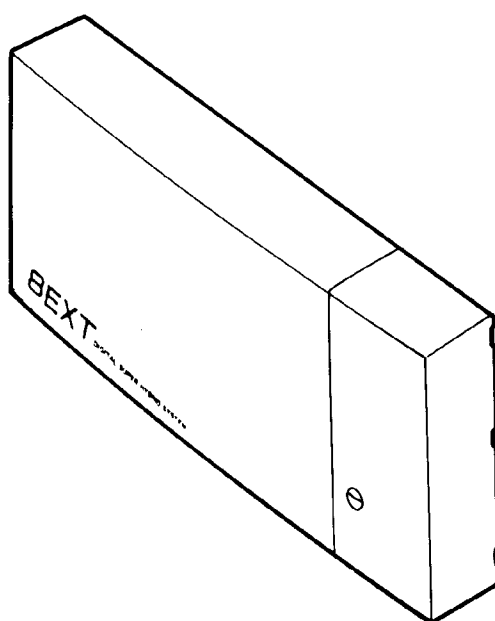


ORDER NO. KM49309616C1

Service Manual

EXTENSION EXPANSION CARD

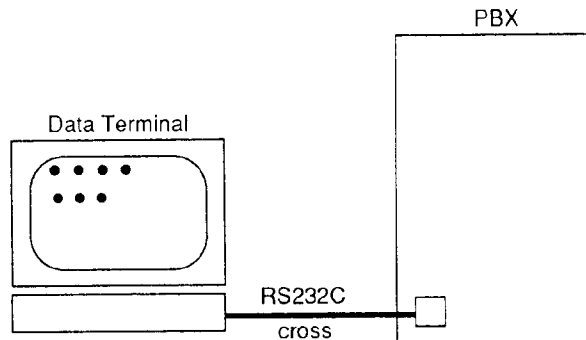
KX-TD170C



Panasonic

DIAGNOSTIC METHOD

1. HOW TO GET INTO SELF-DIAGNOSTIC MODE



- (1) Set the main power switch to ON. (PBX and Data Terminal)
- (2) Connect the Data Terminal to the RS232C of PBX and press the return key of the Data Terminal in 10 seconds.
- (3) After message is displayed, enter password.

Ex.)
Welcome to KX-TD1232 Ver. 2.0 Panasonic CO., LTD
Enter Password
??????↓

- (4) After response message is received, enter diagnostic mode shift command "DAG".

Ex.)
EIA Mode Start
DAG↓

- (5) After response message is received, diagnostic command can be used.

Ex.)
DIAG Mode Start

* Setting of RS-232C communication parameter

Return Cord: CL+LF
Borate: 9600bps
Data : 8 bit
Parity Bit: None
Stop Bit: 1 bit

2. TEST ITEMS

No.	Test Items	Test Method	Check Items
1	DTMF G/R Test	1) Enter "M1 4,0" from data terminal. 2) Enter "M1 4,1" from data terminal.	1) Make sure response is "OK 00". 2) Make sure response is "OK 00".
2	Extension Card Test [Analogue Channel Loop Back]	1) Enter "M2 4,0" from data terminal. 2) Enter "M2 4,1" from data terminal.	1) Make sure response is "OK 00". 2) Make sure response is "OK 00".
3	Extension Card Test [Digital Channel Loop Back]	1) Enter "M3 4,0" from data terminal. 2) Enter "M3 4,1" from data terminal.	1) Make sure response is "OK 0000". 2) Make sure response is "OK 0000".
4	Extension Card Test [Digital Data Loop Back Test]	1) Enter "M4 4" from data terminal.	1) Make sure response is "OK 00"..

CIRCUIT OPERATIONS

1. FUNCTION

EXPANSION EXT CARD is an optional card for extending the EXT lines from 16 up to 24 or 32 lines. The differences between this board and the basic one are as follows;

- No diagnostic function for the CO card

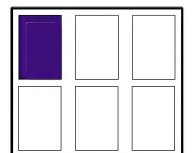
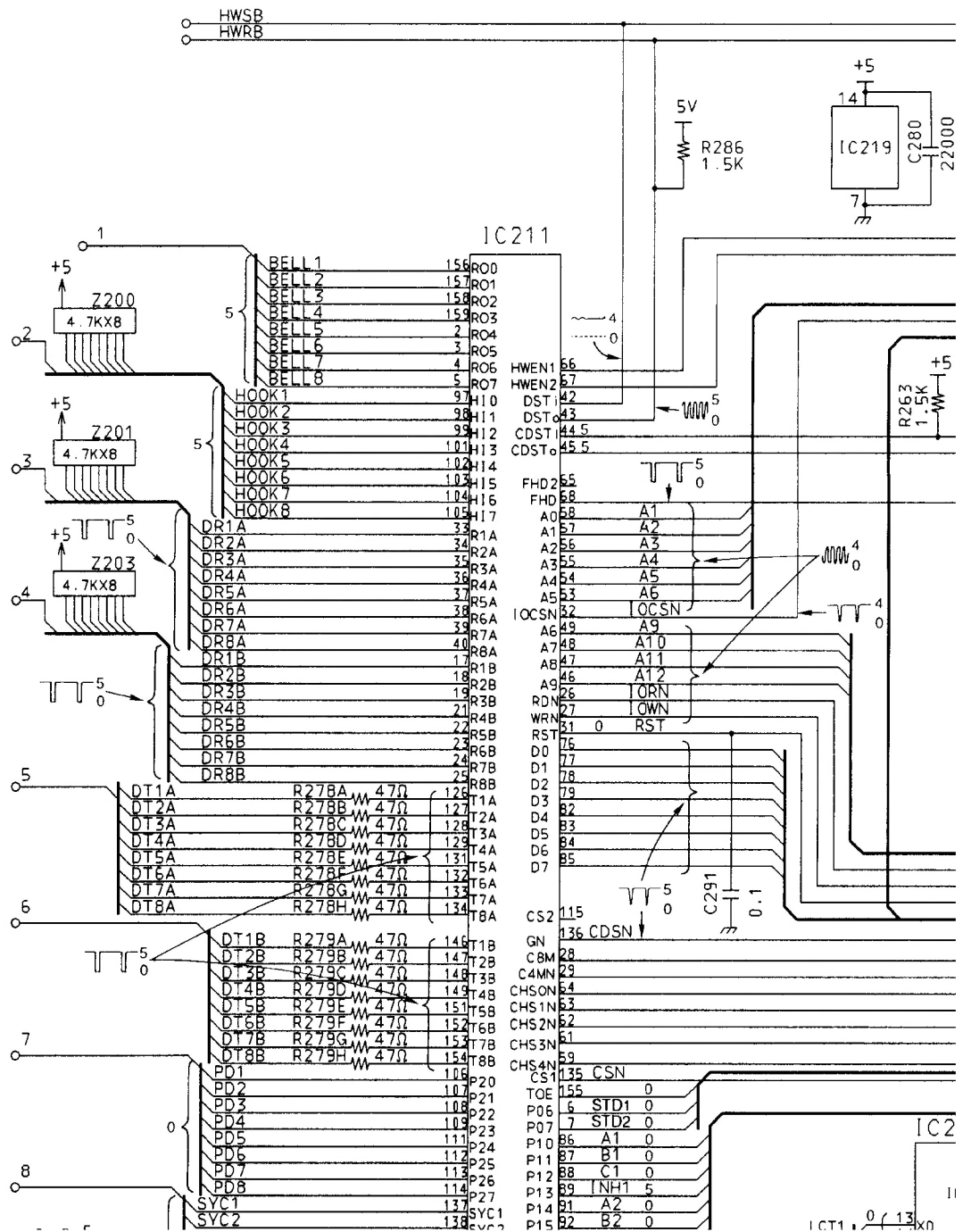
Refer to the Service Manual for KX-TD1232C as for the details of BASIC EXT. BOARD.

2. EXPLANATION OF CIRCUIT OPERATION

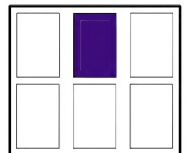
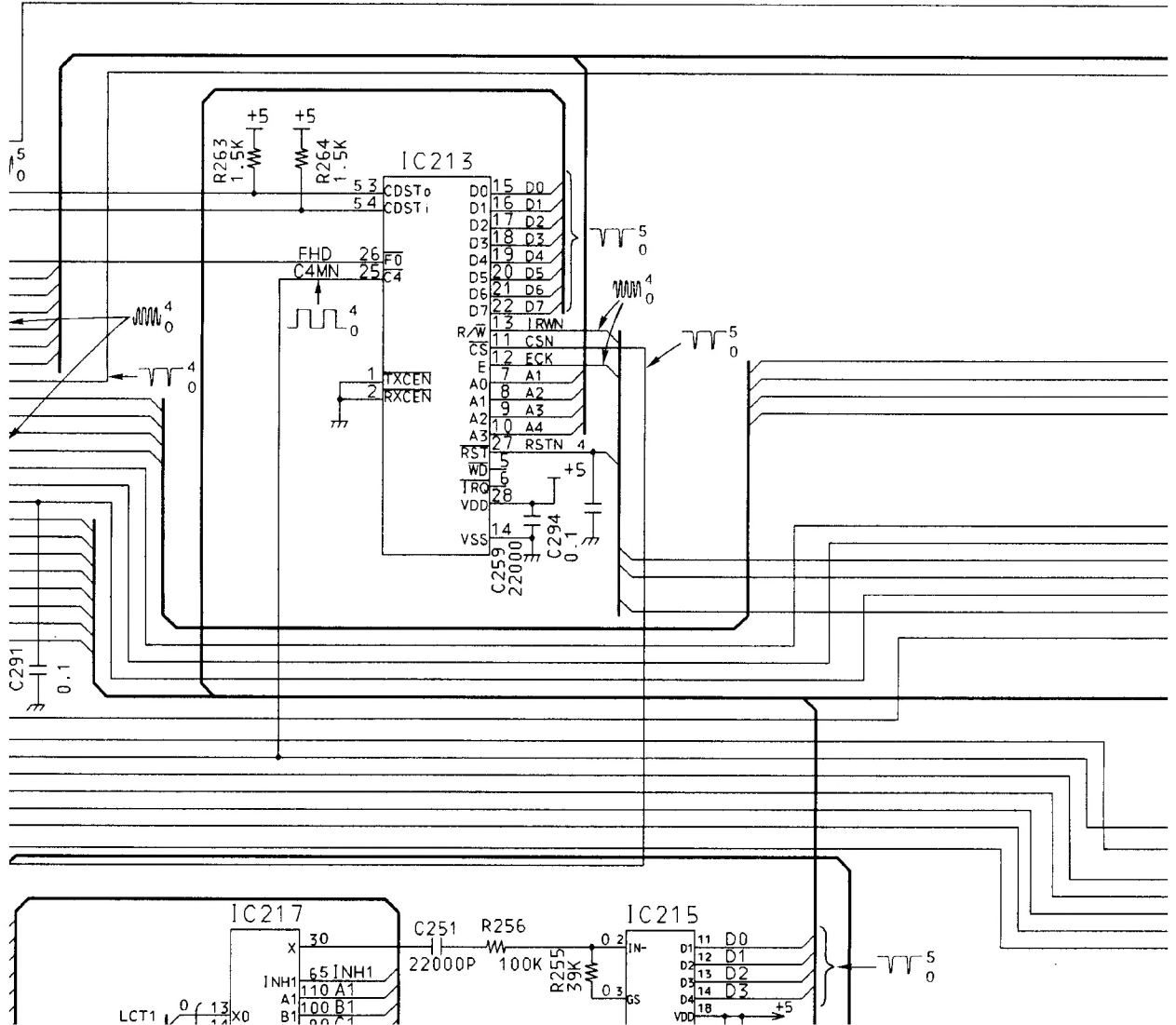
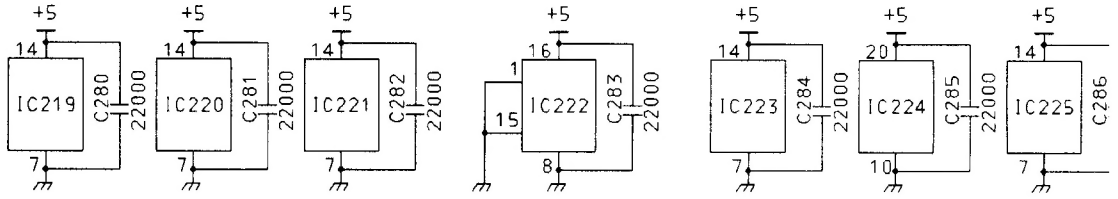
The circuit on this card has the following differences from the BASIC EXT CARD. Others are the same as the basic one.

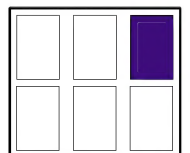
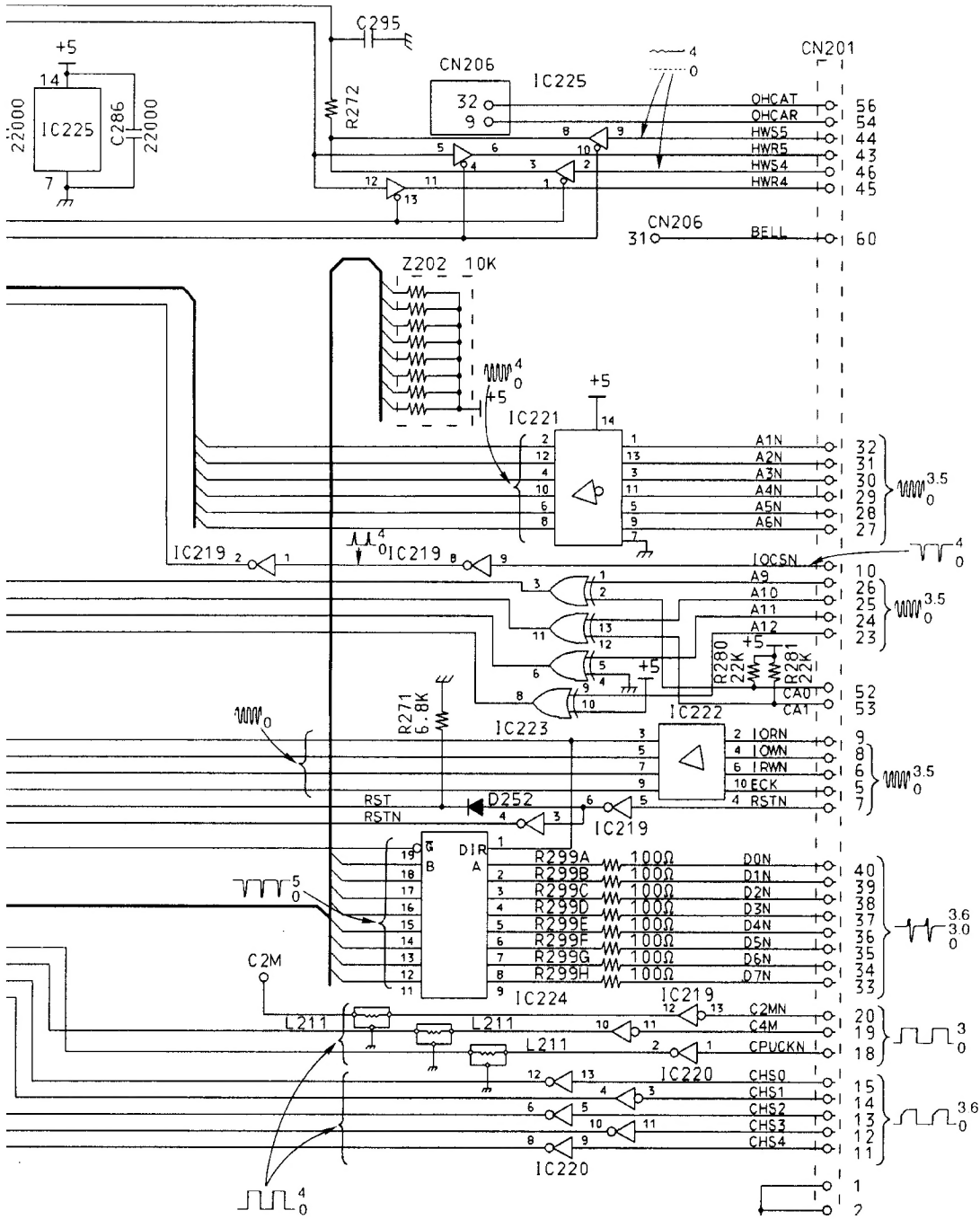
- No diagnostic circuit for CO CARD
- Two lines paths for the transfer at power failure

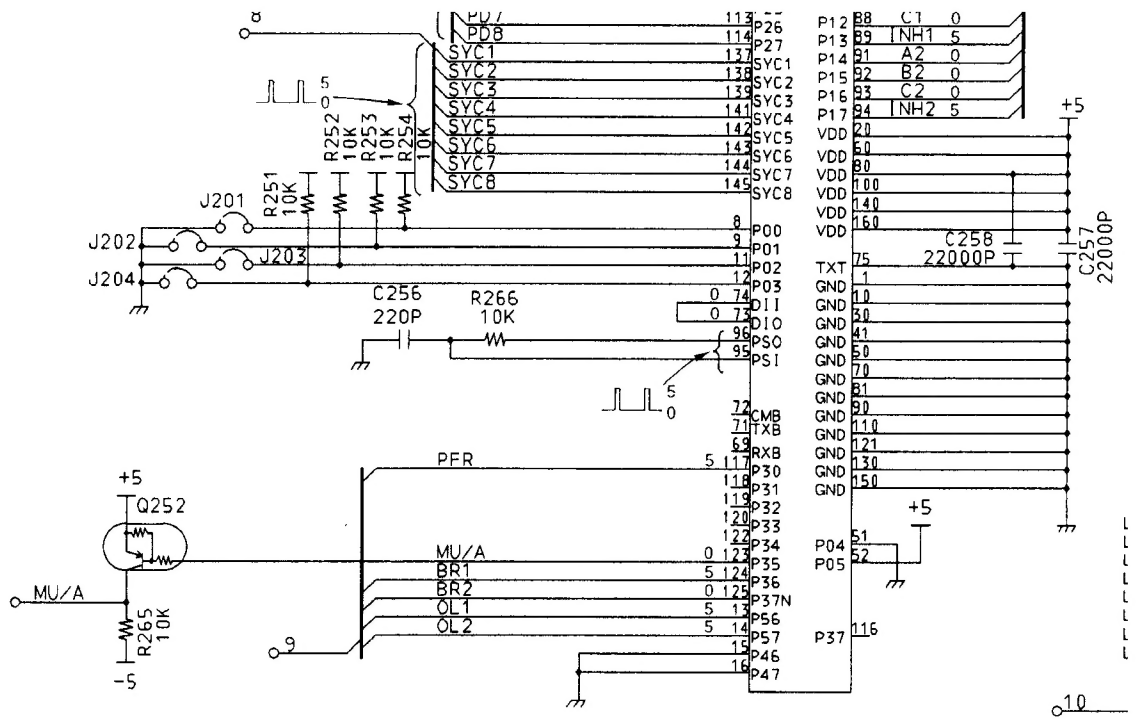
Refer to the Service Manual for KX-TD1232C as for the details of BASIC EXT. BOARD.

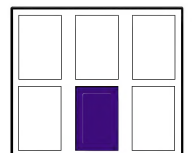
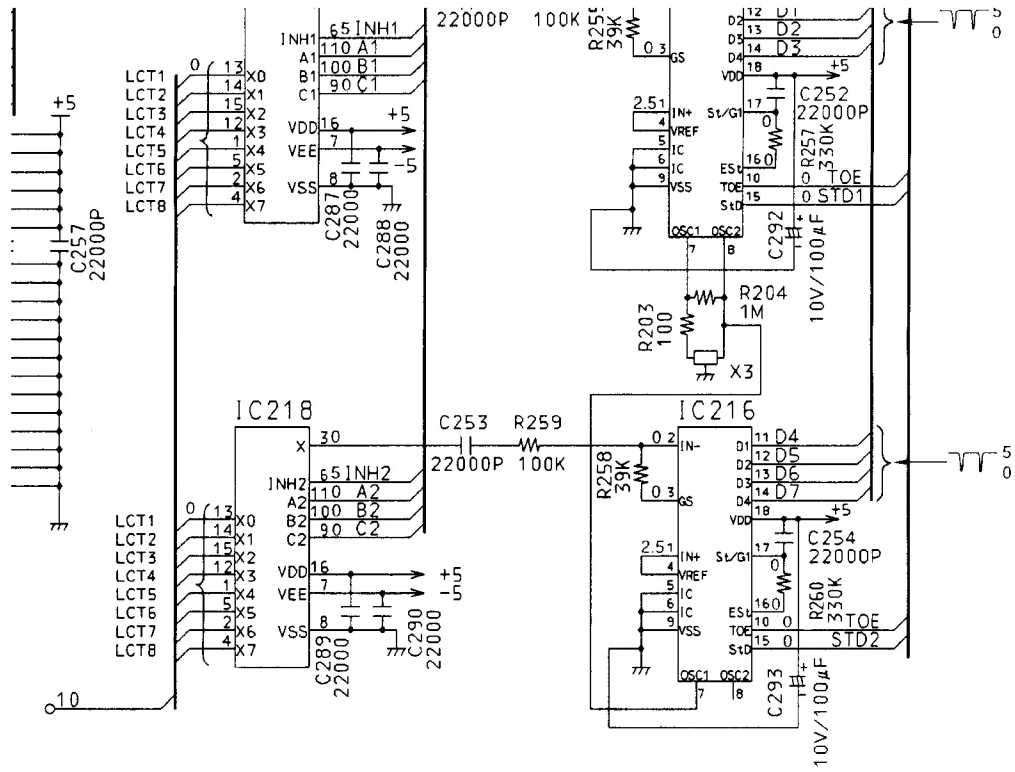


R286
1.5K



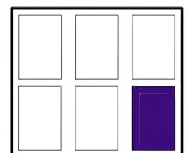
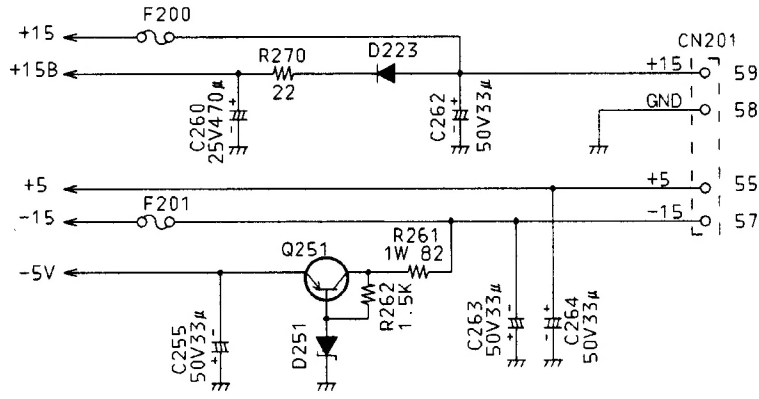
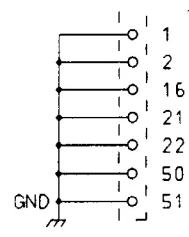




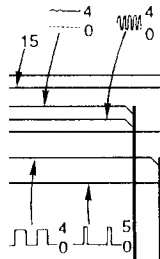


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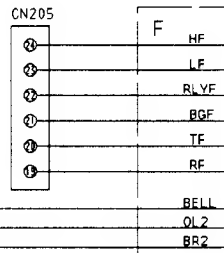
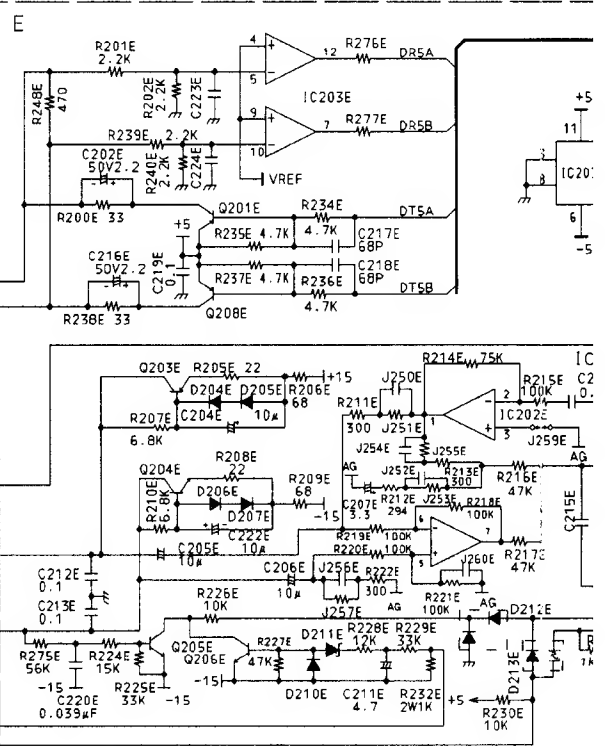
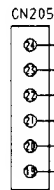
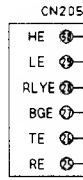
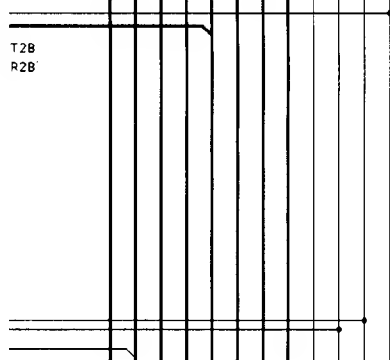
IC220



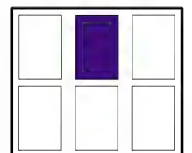
T1B
R1B

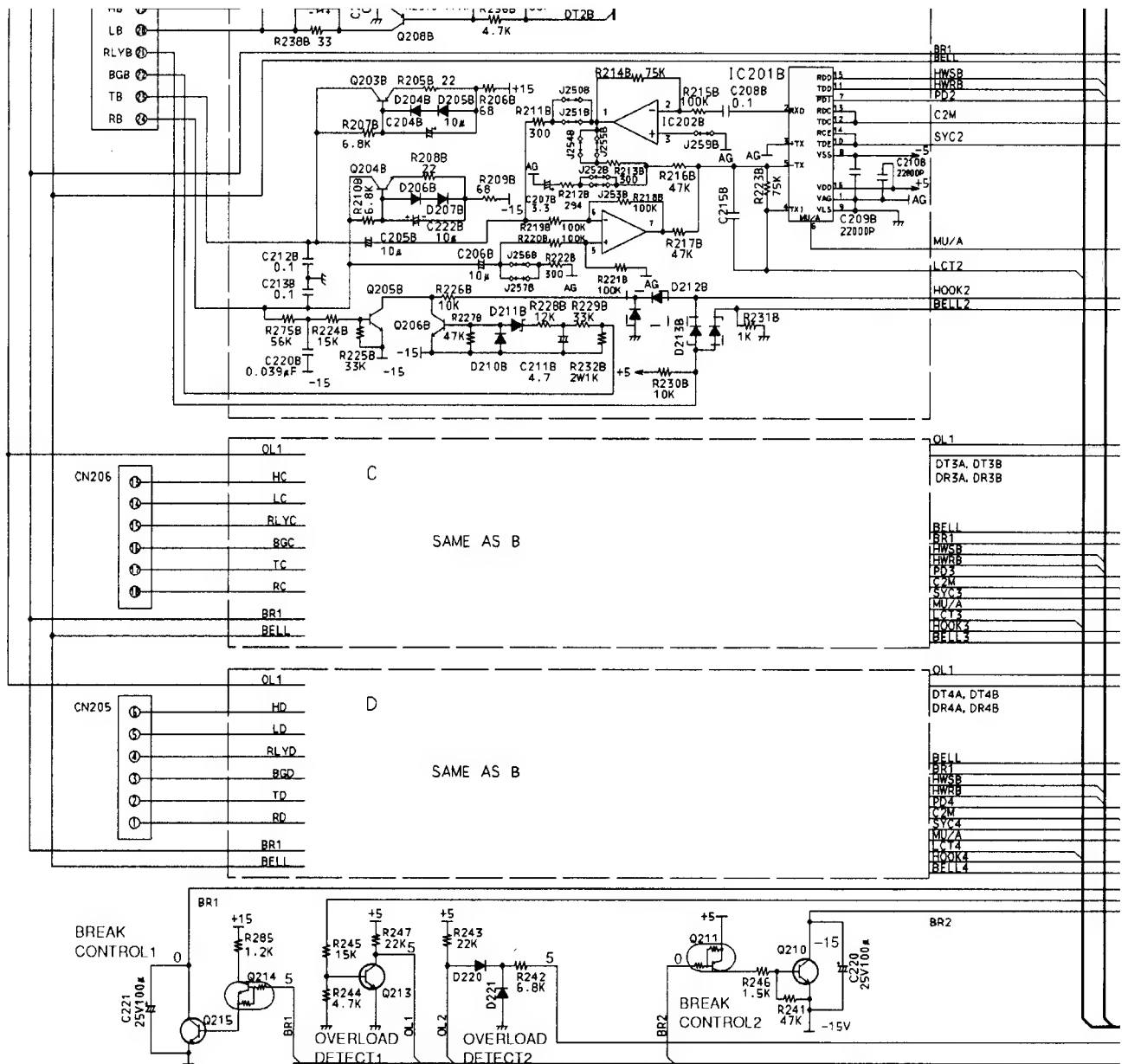


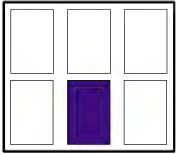
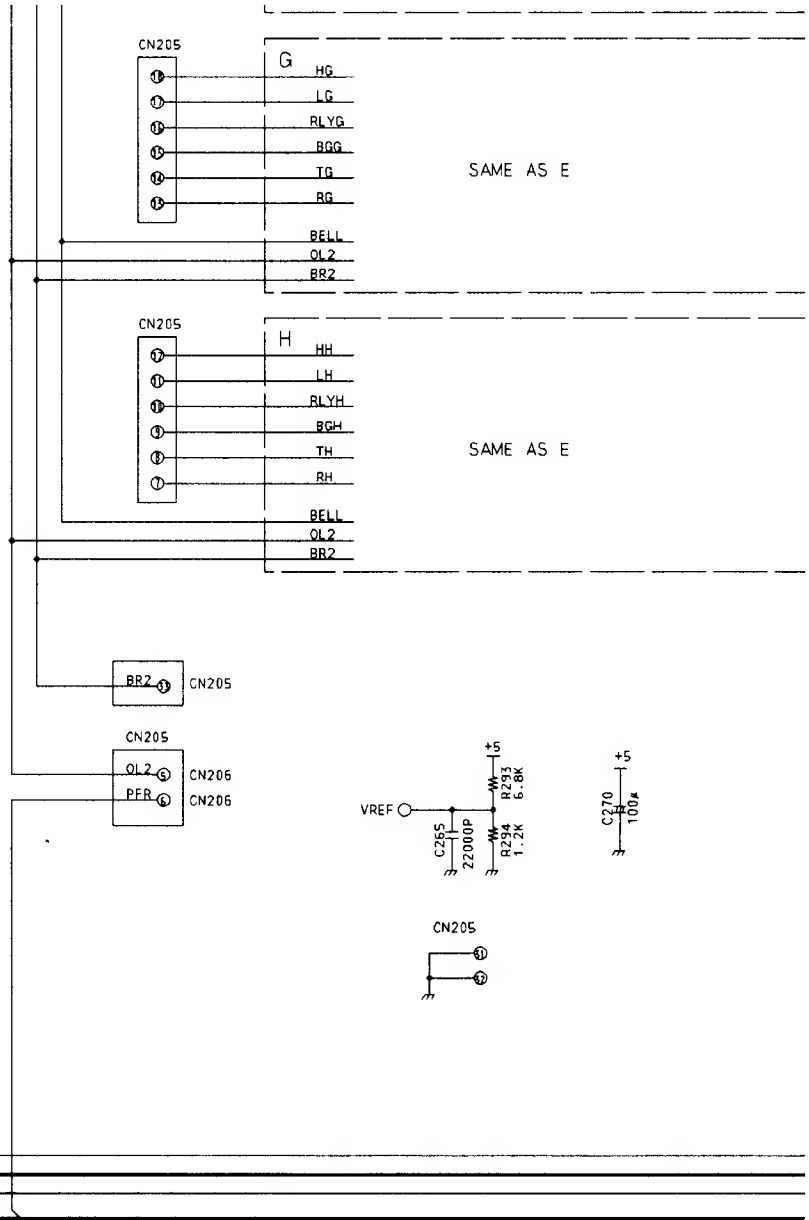
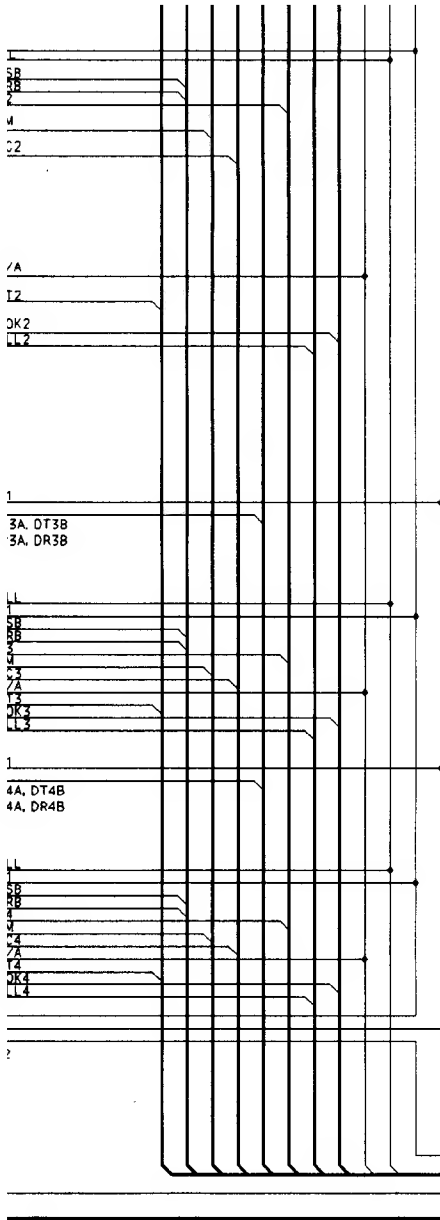
T2B
R2B

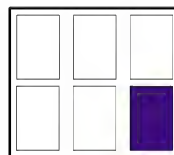
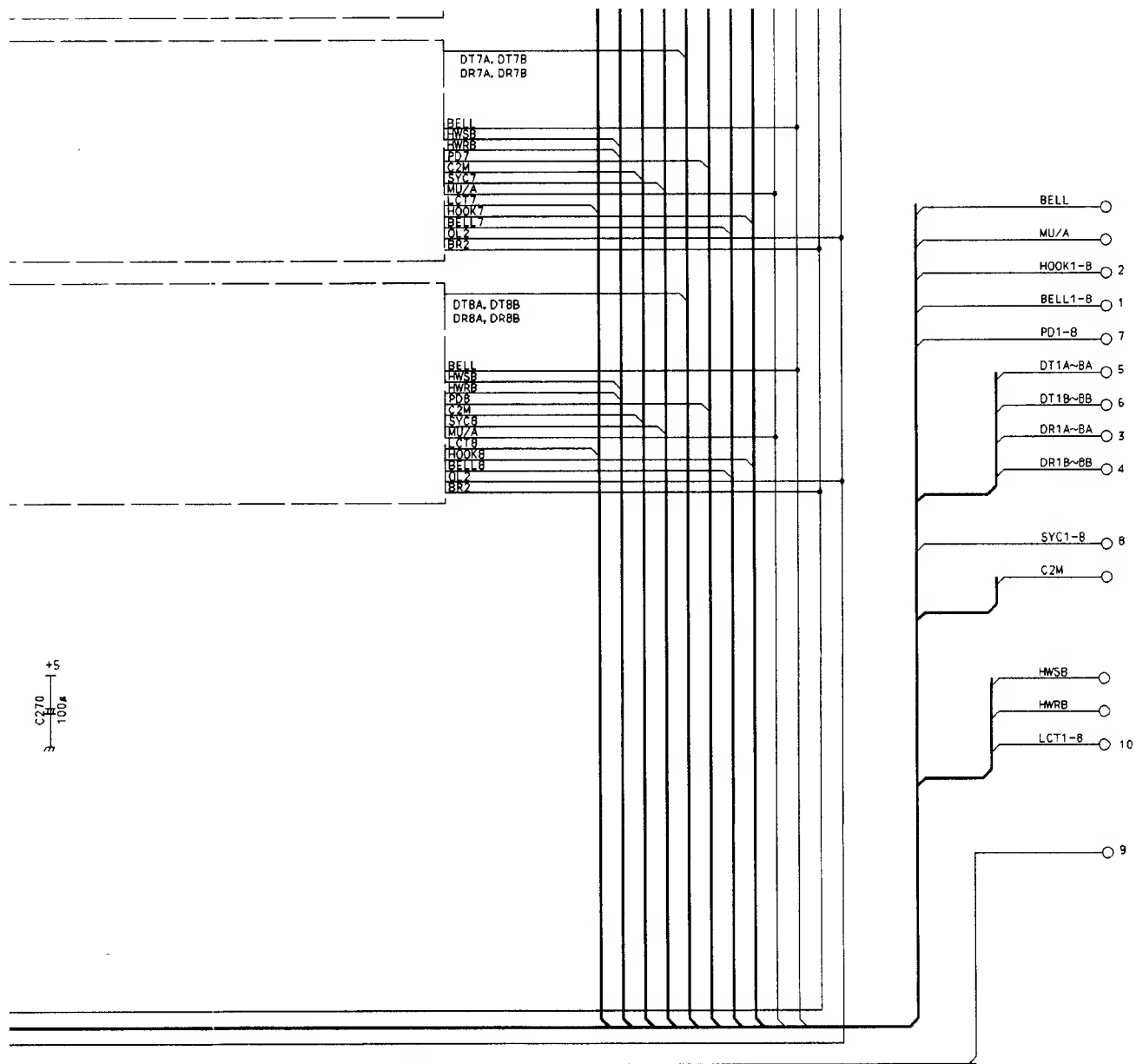


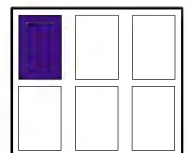
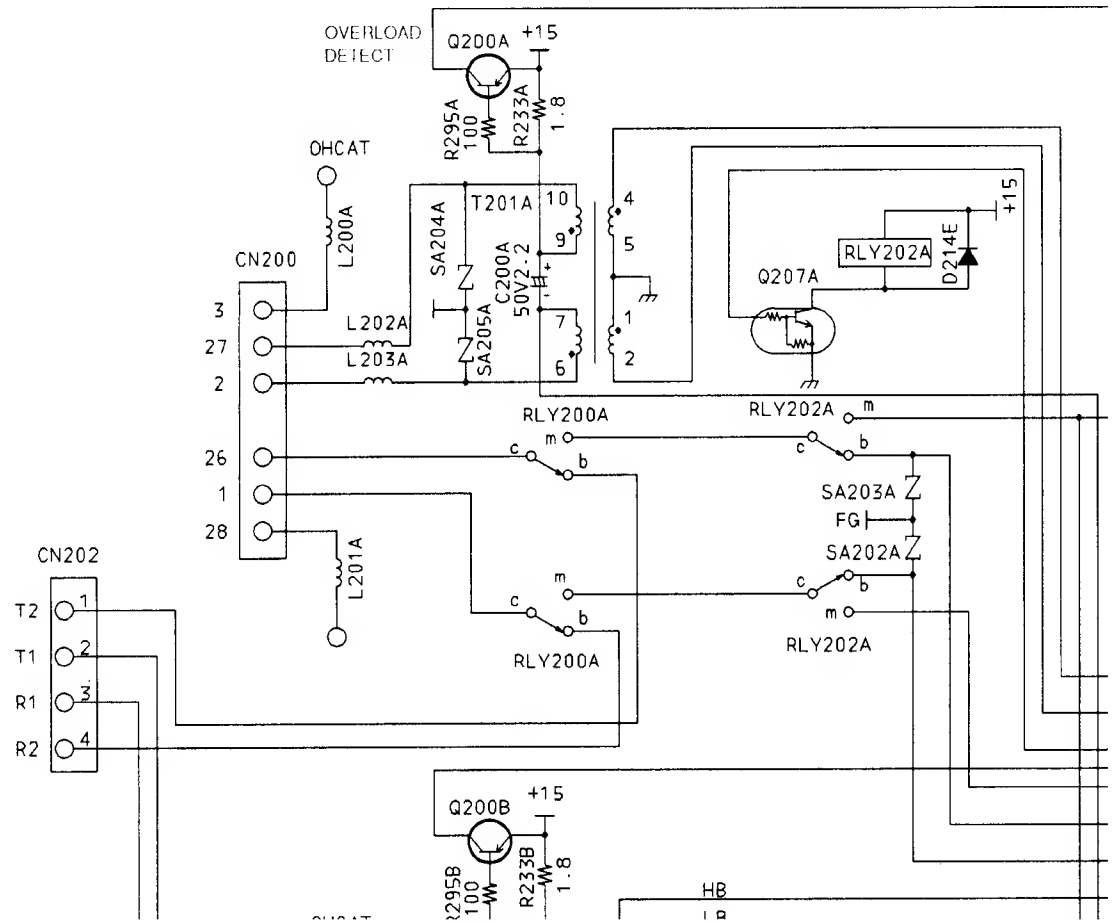
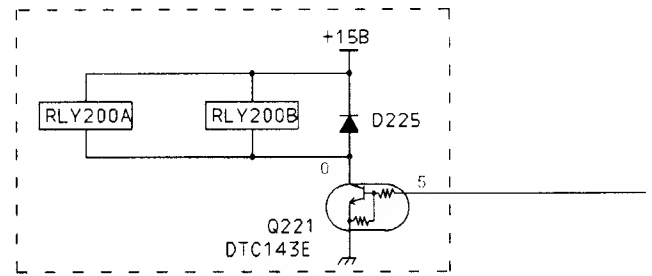
SAME AS E

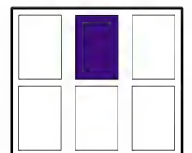
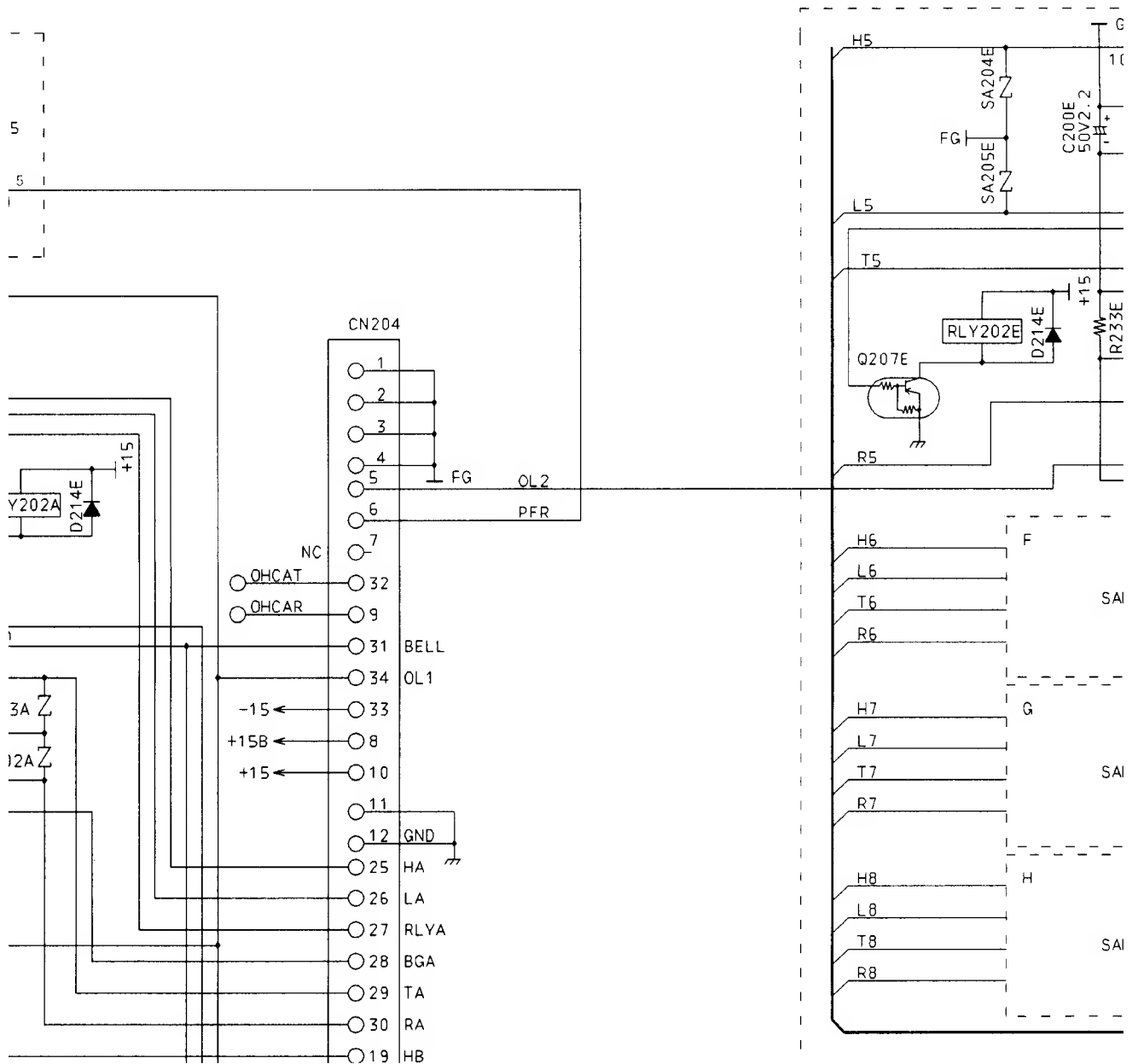


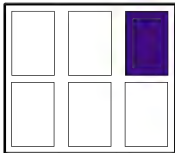


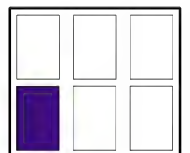
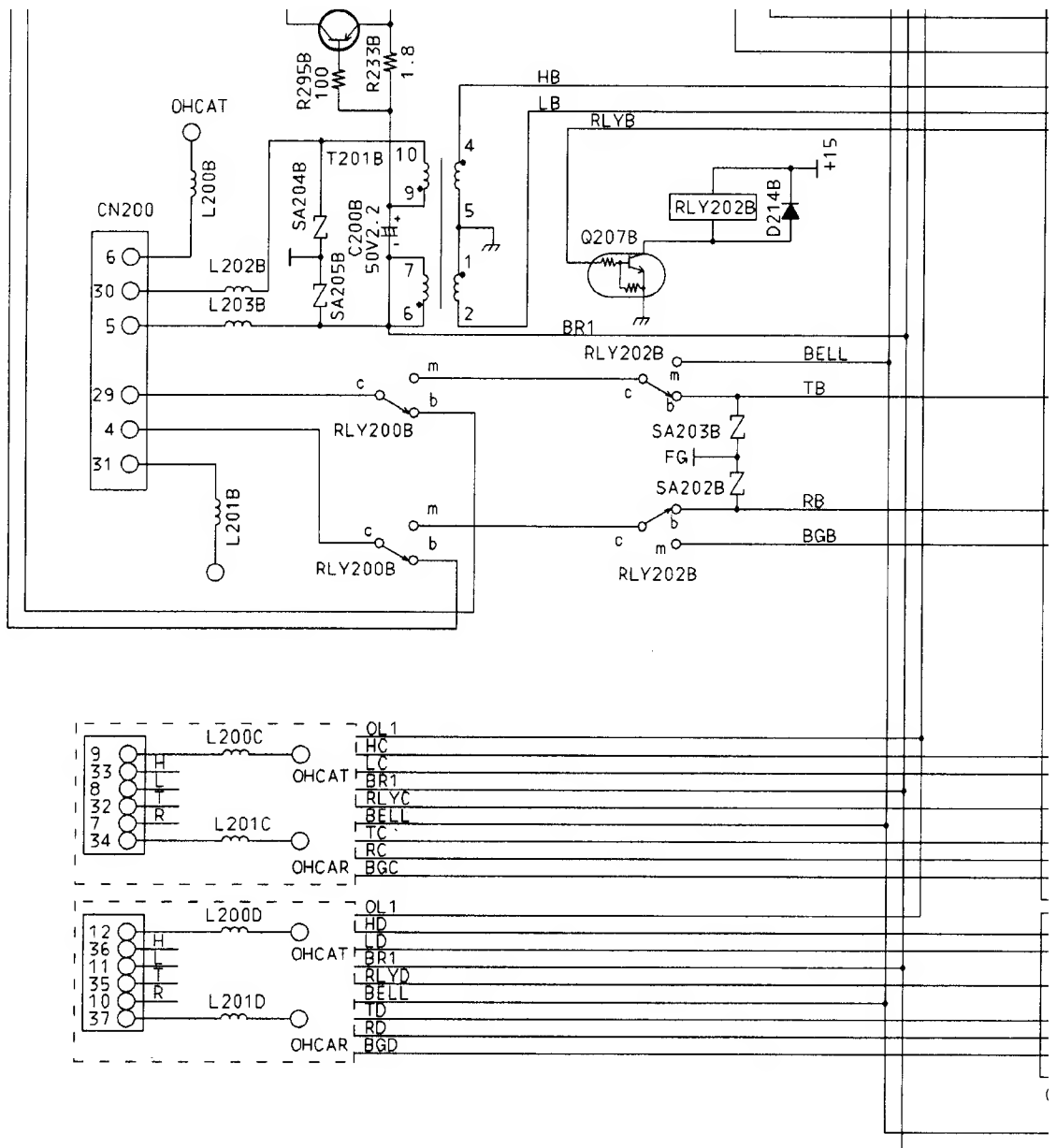


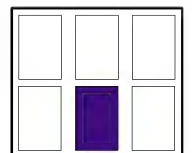
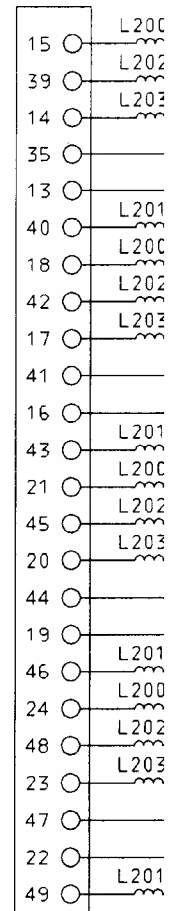
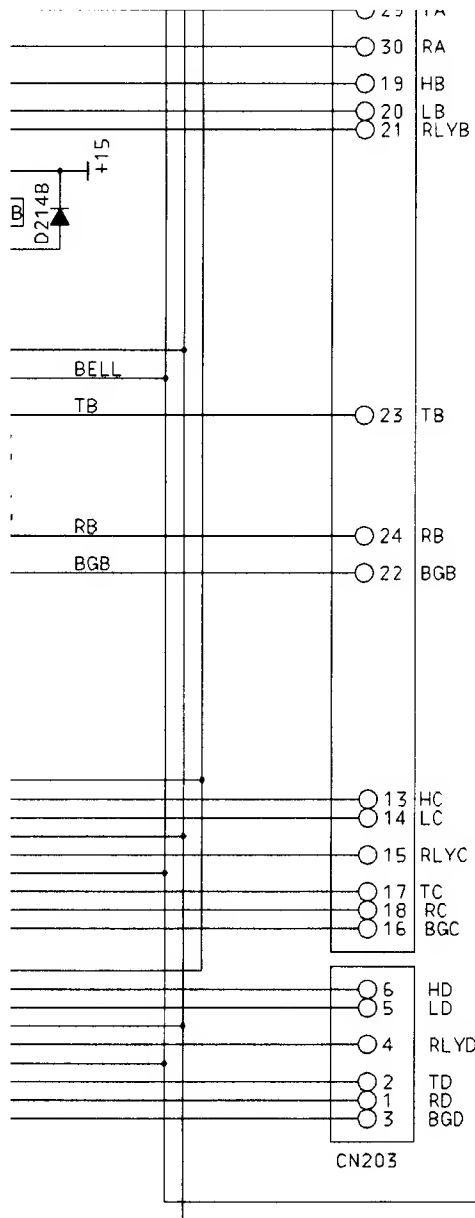


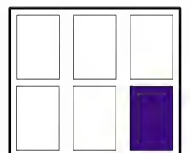
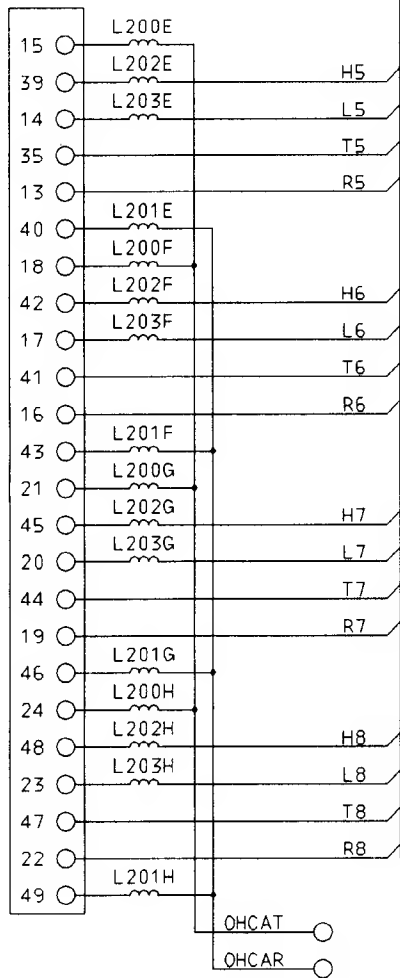




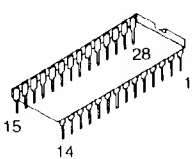
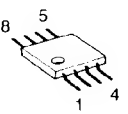
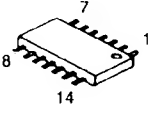
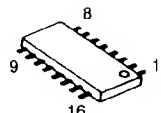
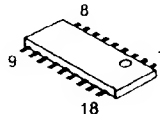
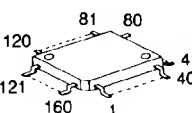
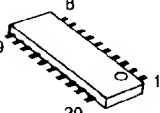
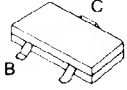
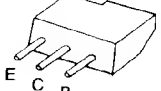
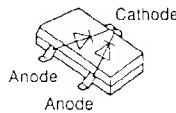
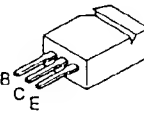
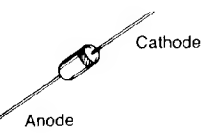
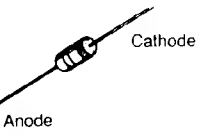
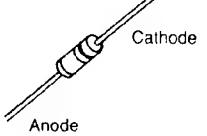




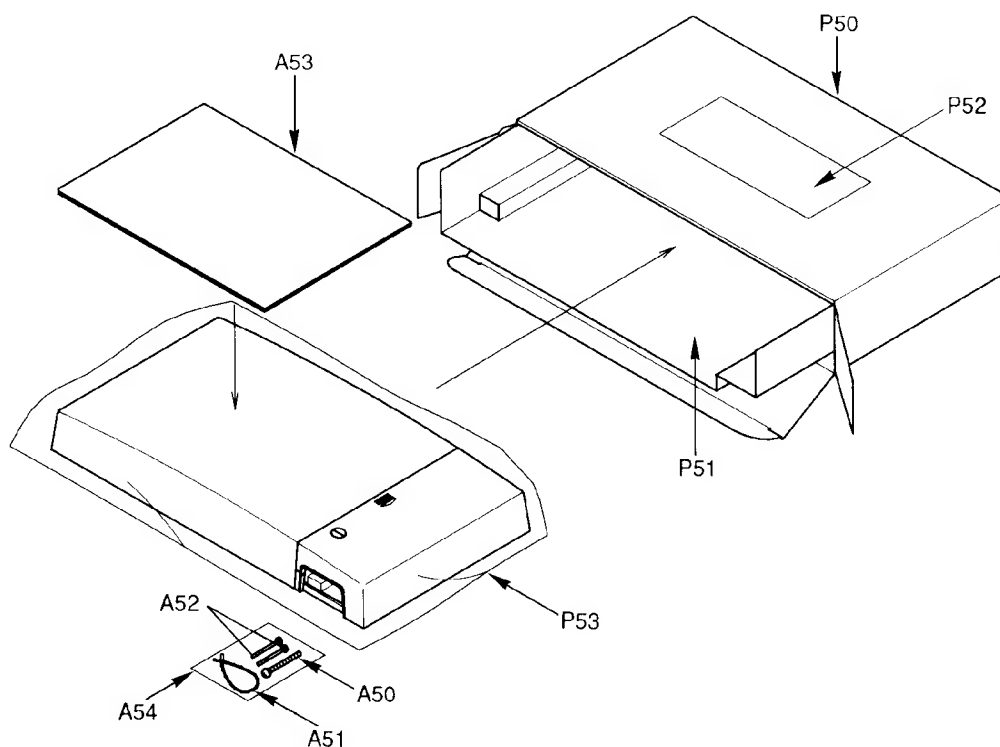




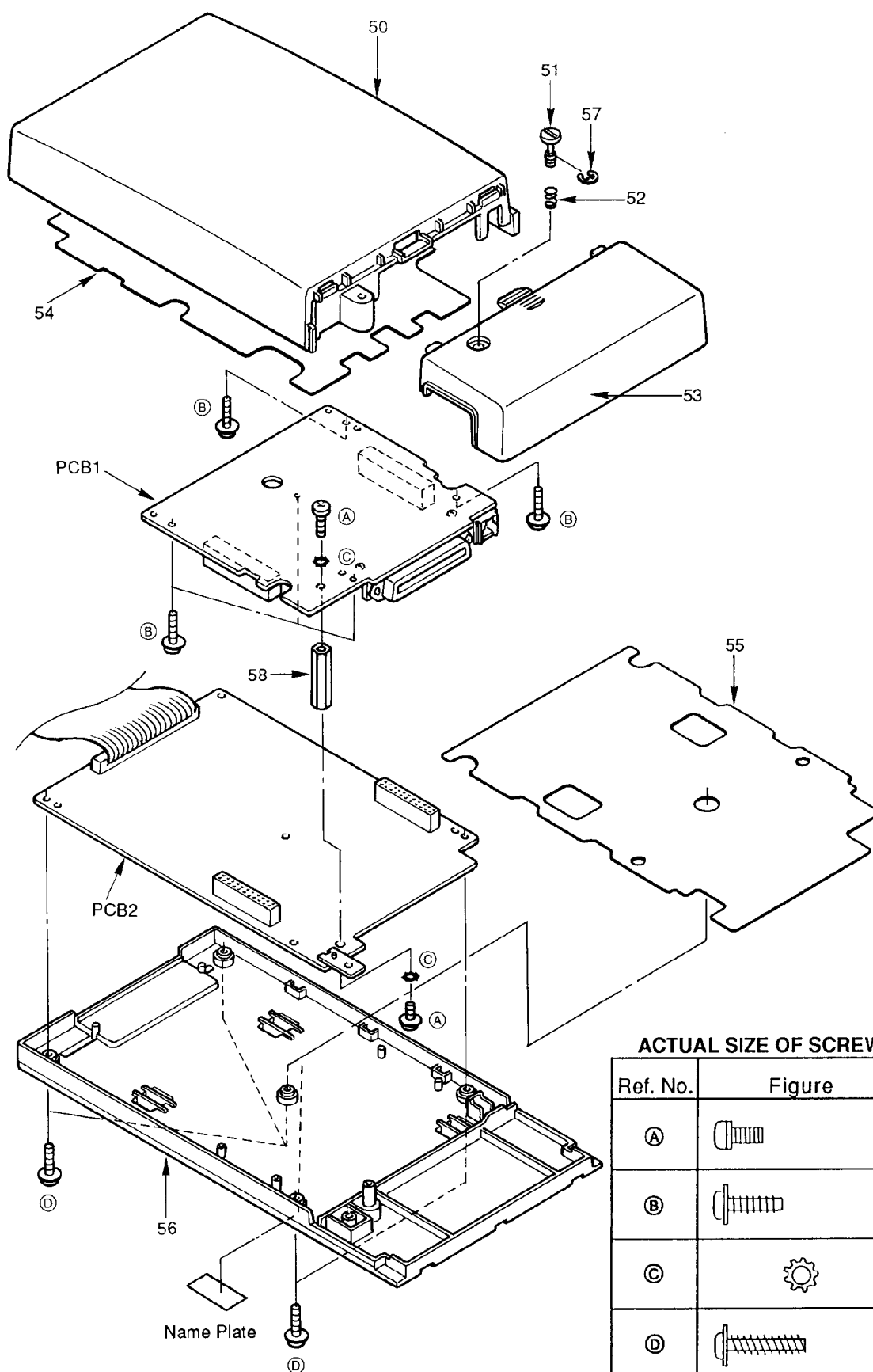
TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

 <p>PQVIMT8952BE</p>	 <p>PQVINJM4558M</p>	 <p>PQVISN7L125S PQVINJM319V PQVISN7L86S PQVISN7L14S</p>	 <p>PQVISN7L365S PQVIMC4051BF PQVIMC45503W</p>	 <p>PQVICM8870FI</p>
 <p>PQVI4603830F</p>	 <p>PQVISN7L640M</p>	 <p>2SD1819A PQVTDTC143E UN5113 UN5213</p>	 <p>2SD1994A 2SB1322 2SB1218A</p>	 <p>MA151WK</p>
 <p>2SD2137</p>	 <p>1SS131, 1SS181</p>	 <p>MA4039 MA4056</p>	 <p>RLS71</p>	

ACCESSORIES AND PACKING MATERIALS



CABINET AND ELECTRICAL PARTS LOCATION



This replacement parts list is for CANADA version only.

Refer to the simplified manual (cover) for other areas.

REPLACEMENT PARTS LIST

Model KX-TD170C

Notes:

1. The marking (RTL) indicates that the Retention Time is limited for this item.
After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

2. The S mark indicates service standard parts and may differ from production parts.

3. RESISTORS & CAPACITORS

Unless otherwise specified.

All resistors are in ohms (Ω) k=1000 Ω , M=1000k Ω

All capacitors are in MICRO FARADS(μ F) P= μ F

*Type &Wattage of Resistor

Type

ERC:Solid	ERX:Metal Film	PQRD:Carbon
ERD:Carbon	ERG:Metal Oxide	PQRO:Fuse
PQ4R:Chip	ERO:Metal Film	ERF:Wire Wound

Wattage

10,16,18:1/8W	14,25,S2:1/4W	12,50,S1:1/2W	1:1W	2:2W	5:5W
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*Type & Voltage of Capacitor

Type

ECFD:Semi-Conductor	ECCD,ECKD,PQCB,PQVP : Ceramic
ECQS:Styrol	ECQM,ECQV,ECQE,ECQU,ECQB : Polyester
PQCRX,ECUV:Chip	ECFA,ECSZ,ECOS : Electrolytic
ECMS:Mica	ECQP : Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H: 50V	05: 50V	0F:3.15V	0J :6.3V	1V :35V
2A:100V	1:100V	1A:10V	1A :10V	50,1H:50V
2E:250V	2:200V	1V:35V	1C :16V	1J :63V
2H:500V		0J:6.3V	1E,25:25V	2A :100V

Ref. No.	Part No.	Part Name & Description	Pcs
CABINET & ELECTRICAL PARTS			
50	PQKM10029Z1	CABINET BODY	1
51	PQHD10011Z	SCREW	1
52	PQUS141Z	SPRING	1
53	PQKV10007Z1	COVER	1
54	PQMC10065Z	SHIELD SHEET	1
55	PQMC10066Z	SHIELD SHEET	1
56	PQKF10026Z1	CABINET PLATE	1
57	XUC3VW	RETAINING RING	1
58	PQHE10035Z	SPACER	1
ACCESSORIES AND PACKING MATERIALS			
A50	XYN4+C35FN	SCREW WITH WASHER	1
A51	PQHR133Z	BAND	1
A52	XSN4X40+28FY	SCREW	2
A53	PQOX10195Z	INSTRUCTION BOOK	1
A54	XZB05X08A03	PROTECTION COVER (FOR ACCESSORY)	1
P50	PQPK10118Z	GIFT BOX	1
P51	PQPD10027Z	CUSHION	1
P52	PQQA10158Z	LABEL, MODEL NO.	1
P53	XZB26X45A04	PROTECTION COVER (FOR SET)	1

Ref. No.	Part No.	Value, Part Name & Description	Pcs
MAIN BOARD PARTS			
PCB1	PQWP1TD170C	MAIN BOARD ASS'Y (RTL)	1
(ICs)			
IC201A-H	PQVIMC45503W	IC	8
IC202A-H	PQVINJM4558M	IC	8
IC203A-H	PQVINJM319V	IC	8
IC211	PQV1603830F	IC	1
IC212	Not Used		
IC213	PQVIMT8952BE	IC	1
IC214	Not Used		
IC215	PQVICM8870FI	IC	1
IC216	PQVICM8870FI	IC	1
IC217	PQVIMC4051BF	IC	1
IC218	PQVIMC4051BF	IC	1
IC219	PQVISN7L14S	IC	1
IC220	PQVISN7L14S	IC	1
IC221	PQVISN7L14S	IC	1
IC222	PQVISN7L365S	IC	1
IC223	PQVISN7L86S	IC	1
IC224	PQVISN7L640M	IC	1
IC225	PQVISN7L125S	IC	1
(TRANSISTORS)			
Q201A-H	2SB1218A	TRANSISTOR(SI) S	8
Q202A-H	Not Used		
Q203A-H	2SB1322	TRANSISTOR(SI)	8
Q204A-H	2SD1994A	TRANSISTOR(SI)	8
Q205A-H	2SD1819A	TRANSISTOR(SI) S	8
Q206A-H	2SD1819A	TRANSISTOR(SI) S	8
Q207A-H	Not Used		
Q208A-H	2SB1218A	TRANSISTOR(SI) S	8
Q209	Not Used		
Q210	2SD2137	TRANSISTOR(SI)	1
Q211	UN5113	TRANSISTOR(SI) S	1
Q212	Not Used		
Q213	2SD1819A	TRANSISTOR(SI) S	1
Q214	UN5213	TRANSISTOR(SI) S	1
Q215	2SD2137	TRANSISTOR(SI)	1
Q251	2SB1322	TRANSISTOR(SI) S	1
Q252	UN5113	TRANSISTOR(SI) S	1
(DIODES)			
D204A-H	RLS71	DIODE(SI)	8
D205A-H	RLS71	DIODE(SI)	8
D206A-H	RLS71	DIODE(SI)	8
D207A-H	RLS71	DIODE(SI)	8
D208	Not Used		
D209	Not Used		
D210A-H	RLS71	DIODE(SI)	8
D211A-H	MA4039	DIODE(SI)	8
D212A-H	MA151WK	DIODE(SI) S	8
D213A-H	1SS181	DIODE(SI)	8
D220	RLS71	DIODE(SI)	1
D221	RLS71	DIODE(SI)	1
D222	Not Used		
D223	1SS131	DIODE(SI)	1
D251	MA4056	DIODE(SI)	1
D252	RLS71	DIODE(SI)	1
(RESISTORS)			
R200A-H	PQ4R10XJ330	33	8
R201A-H	PQ4R10XJ222	2.2K	8
R202A-H	PQ4R10XJ222	2.2K	8
R203	PQ4R10XJ101	100	1
R204	PQ4R10XJ105	1M	1
R205A-H	ERDS2TJ220	22	8
R206A-H	ERDS2TJ680	68	8
R207A-H	PQ4R10XJ682	6.8K	8

Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Value	Pcs	Ref. No.	Part No.	Value	Pcs
R208A-H	ERDS2TJ220	22	8	H293	PQ4R10XF9101	9.1K	1
R209A-H	ERDS2TJ680	68	8	R294	PQ4R10XF1301	1.3K	1
R210A-H	PQ4R10XJ682	6.8K	8	R295	Not Used		
R211A-H	PQ4R10XF3000	300	8	R296A-H	PQ4R10XJ220	22	8
R212A-H	PQ4R10XF2940	294	8	R297A-H	PQ4R10XJ220	22	8
R213	PQ4R10XF3000	300	8	R298	Not Used		
R214A-H	PQ4R10XF7502	75K	8	R299A-H	PQ4R10XJ101	100	8
R215A-H	PQ4R10XF1003	100K	8				
R216A-H	PQ4R10XF4702	47K	8				
R217A-H	PQ4R10XF4702	47K	8			(CAPACITORS)	
R218A-H	PQ4R10XF1003	100K	8	C202A-H	ECEA1HKS2R2	2.2	8
R219A-H	PQ4R10XF1003	100K	8	C203	Not Used		
R220A-H	PQ4R10XF1003	100K	8	C204A-H	ECEA1HKS100	10	8
R221A-H	PQ4R10XF1003	100K	8	C205A-H	ECEA1EN100S	10	8
R222A-H	PQ4R10XF3000	300	8	C206A-H	ECEA1EN100S	10	8
R223A-H	PQ4R10XF7502	75K	8	C207A-H	ECEA1HKS3R3	3.3	8
R224A-H	PQ4R10XJ153	15K	8	C208A-H	ECUV1H104MD	0.1	8
R225A-H	PQ4R10XJ333	33K	8	C209A-H	PQCUV1H223KB	0.022	8
R226A-H	PQ4R10XJ103	10K	8	C210A-H	PQCUV1H223KB	0.022	8
R227A-H	PQ4R10XJ473	47K	8	C211A-H	ECEA1HN4R7S	4.7	8
R228A-H	PQ4R10XJ123	12K	8	C212A-H	PQCUV1H104ZF	0.1	8
R229A-H	PQ4R10XJ333	33K	8	C213A-H	PQCUV1H104ZF	0.1	8
R230A-H	PQ4R10XJ103	10K	8	C214	Not Used		
R231A-H	PQ4R10XJ102	1K	8	C215	Not Used		
R232A-H	PQRD2TJ102	1K	8	C216A-H	ECEA1HKS2R2	2.2	8
R233	Not Used			C217A-H	PQCUV1H680JC	68P	8
R234A-H	PQ4R10XJ472	4.7K	8	C218A-H	PQCUV1H680JC	68P	8
R235A-H	PQ4R10XJ472	4.7K	8	C219A-H	ECUV1H104MD	0.1	8
R236A-H	PQ4R10XJ472	4.7K	8	C220A-H	ECUV1H393KB	0.039	8
R237A-H	PQ4R10XJ472	4.7K	8	C221	ECEA1EU101	100	1
R238A-H	PQ4R10XJ330	33	8	C222A-H	ECEA1HKS100	10	8
R239A-H	PQ4R10XJ222	2.2K	8				
R240A-H	PQ4R10XJ222	2.2K	8	C251	PQCUV1H223KB	0.022	1
R241	ERDS2TJ473	47K	1	C252	PQCUV1H223KB	0.022	1
R242	PQ4R10XJ682	6.8K	1	C253	PQCUV1H223KB	0.022	1
R243	PQ4R10XJ223	22K	1	C254	PQCUV1H223KB	0.022	1
R244	PQ4R10XJ472	4.7K	1	C255	ECEA1HU330	33	1
R245	PQ4R10XJ153	15K	1	C256	PQCUV1H221JC	220P	1
R246	ERDS2TJ152	1.5K	1	C257	PQCUV1H223KB	0.022	1
R247	PQ4R10XJ223	22K	1	C258	PQCUV1H223KB	0.022	1
R248A-H	PQ4R10XJ821	820	8	C259	PQCUV1H223KB	0.022	1
R249	Not Used			C260	ECEA1EU471	470	1
R250	Not Used			C261	Not Used		
R251	PQ4R10XJ103	10K	1	C262	ECEA1HU330	33	1
R252	PQ4R10XJ103	10K	1	C263	ECEA1HU330	33	1
R253	PQ4R10XJ103	10K	1	C264	ECEA1HU330	33	1
R254	PQ4R10XJ103	10K	1	C265	PQCUV1H223KB	0.022	1
R255	PQ4R10XJ393	39K	1	C266	Not Used		
R256	PQ4R10XJ104	100K	1	C269			
R257	PQ4R10XJ334	330K	1	C270	ECEA1CKS101	100	1
R258	PQ4R10XJ393	39K	1	C280	PQCUV1H223ZF	0.022	9
R259	PQ4R10XJ104	100K	1	C288			
R260	PQ4R10XJ334	330K	1	C289	PQCUV1H223KB	0.022	1
H261	PQRD1TJ820	82	1	C290	PQCUV1H223KB	0.022	1
R262	ERDS2TJ152	1.5K	1	C291	PQCUV1H104ZF	0.1	1
R263	PQ4R10XJ102	1K	1	C292	ECEA1AU101	100	1
R264	PQ4R10XJ102	1K	1	C293	FCFA1AU101	100	1
R265	PQ4R10XJ103	10K	1	C294	PQCUV1H104ZF	0.1	1
R266	PQ4R10XJ103	10K	1				
R267	Not Used				(COILS)		
H269				L210	PQVFTU50M1	CERAMIC FILTER	1
R270	ERDS2TJ220	22	1	L211	PQVFTU50MT	CERAMIC FILTER	1
R271	PQ4R10XJ682	6.8K	1	L212	PQVFTU50MT	CERAMIC FILTER	1
R272	PQ4R10XJ101	100	1				
R275A-H	PQ4R10XJ563	56K	8				
R276	PQ4R10XJ470	47	8			(CRYSTAL OSCILLATOR)	
R277	PQ4R10XJ470	47	8	X201	PQVBF3584A1	CRYSTAL OSCILLATOR	1
R278A-H	PQ4R10XJ560	56	8				
R279A-H	PQ4R10XJ560	56	8				
R280	PQ4R10XJ223	22K	1			(COMPONENTS COMBINATIONS)	
R281	PQ4R10XJ223	22K	1	Z200	PQRSLD8X472J	COMPONENTS COMBINATION	1
R282	Not Used			Z201	PQRSLD8X472J	COMPONENTS COMBINATION	1
R284				Z202	PQRSLD8X472J	COMPONENTS COMBINATION	1
R285	PQ4R10XJ222	2.2K	1	Z203	PQRSLD8X472J	COMPONENTS COMBINATION	1
R286	PQ4R10XJ102	1K	1				

This replacement parts list is for CANADA version only.

Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Value, Part Name & Description	Pcs
CN201	PQJS60R96Z	(CONNECTORS) CONNECTOR, 60P	1
CN205	PQJS34X33Y	CONNECTOR, 34P	1
CN206	PQJS34X33Y	CONNECTOR, 34P	1
F200	PQBA1N15NMAL	(FUSES) FUSE	1
F201	PQBA1N15NMAL	FUSE	1
SUB BOARD PARTS			
PCB2	PQWP2TD170C	SUB BOARD ASS'Y	1
Q200A-D	2SB1218A	(TRANSISTORS) TRANSISTOR(SI) S	4
Q200E-H	2SD1819A	TRANSISTOR(SI) S	4
Q207A-H	PQVTDTC143E	TRANSISTOR(SI) S	8
Q221	PQVTDTC143E	TRANSISTOR(SI) S	1
D214A-H	1SS131	(DIODES) DIODE(SI)	8
D225	1SS131	DIODE(SI)	1
C200A-H	ECEA1HKS2R2	(CAPACITORS) 2.2	8
L200A-H	PQLQZM100K	(COILS) COIL S	8
L201A-H	PQLQZM100K	COIL S	8
L202A-H	PQLE106	COIL	8
L203A-H	PQLE106	COIL	8
R233A-H	PQ4R10XJ1R8	(RESISTORS) 1.8	8
R295A-H	PQ4R10XJ101	100	8
RY200A, RY200B	PQSL44Z	(RELAYS) RELAY	2
RY202A-H	PQSL119Z	RELAY	8
T201A-H	ETE13K79AY	(TRANSFORMERS) TRANSFORMER	8
ZR202A-H	PQVDNV039D03	(VARISTORS) VARISTOR	8
ZR203A-H	PQVDNV039D03	VARISTOR	8
ZR204A-H	PQVDNV039D03	VARISTOR	8
ZR205A-H	PQVDNV039D03	VARISTOR	8
CN200	PQJS50Q30Y	(CONNECTORS) JACK/SOCKET	1
CN201	Not Used		
CN202	PQJJ1TB26Z	JACK/SOCKET	1
CN203	PQJP34D30Y	CONNECTOR, 34P	1
CN204	PQJP34D30Y	CONNECTOR, 34P	1